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(54) Equalization for ADSL using a mixed time domain and frequency domain approach

(57) A method for training a time-domain equalizer having at least one coefficient that includes estimating a channel, initializing the at least one coefficient of the time-domain equalizer, updating the at least one coefficient of the time-domain equalizer with the estimated channel, retaining the updated estimated channel, fixing the updated value of the at least one coefficient of the time-domain equalizer for at least a one-symbol duration, calculating a modulated symbol based on an output of the time-domain equalizer, calculating a second value for the estimated channel based on the modulated symbol, setting the estimated channel to the second value, and repeating the step of updating the time-domain equalizer through the step of setting the estimated channel to the second value until a predetermined condition has been met.

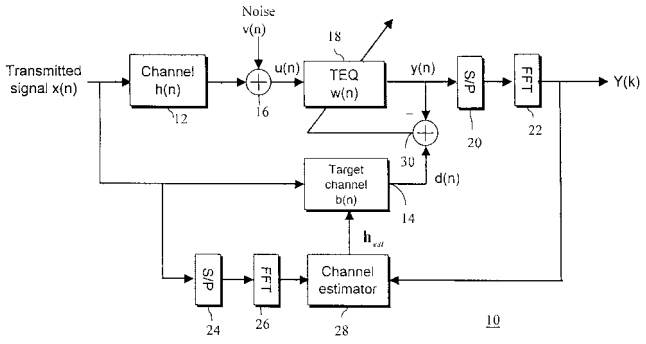

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 02 25 3216

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	27 January 2006	Moreno, M

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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Application Number
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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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T	CHIH-CHI WANG ET AL: "A cost-effective TEQ algorithm for ADSL systems" IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS, vol. VOL. 1 OF 10, 11 June 2001 (2001-06-11), pages 398-402, XP010553033 IEEE, NEW YORK, NY, USA ISBN: 0-7803-7097-1 * the whole document *	1-16	TECHNICAL FIELDS SEARCHED (IPC)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
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Application Number
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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-16

Training of a time-domain equalizer
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2. claims: 17-27

Channel estimation

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 02 25 3216

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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27-01-2006

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